reed extends a first distance beyond a leading end of its PCB, a leading end of a second bimorph reed mounted below the first bimorph reed extends beyond the leading end of the first bimorph reed, a leading end of a third bimorph reed mounted below the second bimorph reed extends beyond the leading end of the second bimorph reed, and a leading end of a fourth bimorph reed mounted below the third bimorph reed extends beyond the leading end of the third bimorph reed.

[0038] A second set of bimorph reeds clipped to a second side of a first PCB also includes four (4) bimorph reeds having a common length. The bimorph reeds are staggered with respect to one another so that a leading end of a first, uppermost bimorph reed extends a first distance beyond a leading end of its PCB, a leading end of a second bimorph reed mounted below the first bimorph reed extends beyond the leading end of the first bimorph reed, a leading end of a third bimorph reed mounted below the second bimorph reed extends beyond the leading end of the second bimorph reed, and a leading end of a fourth bimorph reed mounted below the third bimorph reed extends beyond the leading end of the third bimorph reed.

[0039] Each bimorph reed is clipped to the printed circuit board so that a leading end of each bimorph reed is positioned beneath a Braille pin disposed in the pinholes formed in the horizontal section of the angle wall. The respective leading ends of the four (4) bimorph reeds on the first side of the PCB abut or are closely spaces apart from the lowermost ends of the pins in a first column of four (4) Braille pins in a Braille cell and the respective leading ends of the four (4) bimorph reeds on the second side of the PCB abut or are closely spaced apart from the lowermost ends of the pins in a second column of four (4) Braille pins in a Braille cell.

[0040] The Braille pins may be formed independently of one another or they may be formed in connected relation to one another so that one set of connected Braille pins is adapted to fit within one Braille cell. In the latter, eight Braille pins are releasably connected to one another so that individual pins of the set of connected Braille pins are detachable from one another after being placed into respective pinholes of a Braille cell.

[0041] Each pin of the plurality of Braille pins has a four (4) part construction. More particularly, each pin has a first, lowermost part of solid or hollow construction that may have a transverse cross-section of any predetermined geometrical configuration. A second part also has a solid or hollow construction that may have a transverse cross-section of any predetermined geometrical configuration but its breadth is greater than that of the first section. Accordingly, a first shoulder is formed where the first and second parts meet one another. A third part of the pin is of solid or hollow construction and may also have a transverse cross-section of any predetermined geometrical configuration. The breadth of the third part is less than the breadth of the second part, forming a second shoulder where said second and third parts meet. In a preferred embodiment, the third part has a non-circular cross-section such as a star-shaped cross-section, but any non-circular cross-section such as triangular, square, pentagonal, hexagonal, elliptical, oblong, crescent, and the like is within the scope of this invention.

[0042] The fourth part of each pin has a solid or hollow construction and may have a transverse cross-section of any predetermined geometric configuration. It has a breadth less than the breadth of the third part, thereby forming a third shoulder where said third and fourth parts meet. The fourth part includes a rounded free end adapted for tactile communication with a user of the inventive structure. The user feels the tip when the pin is extended, i.e., displaced from its position of repose by an actuated bimorph reed.

[0043] The tip of the first pin in the first column of pins is extended when voltage is applied to the uppermost bimorph reed in the first set of bimorph reeds. The tip of the second pin in the first column of pins is extended when a voltage is applied to the bimorph reed mounted immediately below the first bimorph reed. The tip of the third pin in the first column of pins is extended when a voltage is applied to the bimorph reed mounted immediately below the second bimorph reed and the tip of the fourth pin in the first column of pins is extended when a voltage is applied to the bimorph reed mounted immediately below the third bimorph reed.

[0044] The tip of the first pin in the second column of pins is extended when voltage is applied to the uppermost bimorph reed in the second set of bimorph reeds. The tip of the second pin in the second column of pins is extended when a voltage is applied to the bimorph reed mounted immediately below the first bimorph reed. The tip of the third pin in the second column of pins is extended when a voltage is applied to the bimorph reed mounted immediately below the second bimorph reed and the tip of the fourth pin in the second column of pins is extended when a voltage is applied to the bimorph reed mounted immediately below the third bimorph reed.

[0045] A monolithic cell cap covers each Braille cell of the plurality of Braille cells. It also covers a plurality of buttons that are dedicated to control of a cursor. More particularly, a first plurality of cursor-control buttons is mounted in upstanding to the top wall of the chassis/backplane. A first comb-like holder holds first plurality of buttons. Each button of the first plurality of buttons has a head and a stem, the head being enlarged with respect to its stem. The first comb-like holder includes parallel, contiguous teeth that are spaced apart from one another. The free end of each tooth is adapted to engage the heads of its associated button.

[0046] A second plurality of buttons is also mounted in upstanding relation to the top wall of the chassis/backplane. A second comb-like holder holds the second plurality of buttons. Each button of the second plurality of buttons has a head and a stem, the head being enlarged with respect to its stem. The second comb-like holder includes parallel, contiguous teeth that are spaced apart from one another. The free end of each tooth is adapted to engage the heads of its associated button. The first comb-like holder and the second comb-like holder are disposed in confronting relation to one another.

[0047] Each comb-like holder includes twenty (20) teeth. There being two (2) comb-like holders, there is a total of forty (40) buttons, i.e., two (2) buttons for each of the twenty (20) Braille cells in a module.

[0048] The bottom wall of the novel chassis/backplane is formed of a material that does not require additional isolation from the metal chassis to which it is mounted.

[0049] The monolithic cap that covers the first and second comb-like holders is releasably engaged to the top wall of the chassis/backplane. The monolithic cap has a first set of forty (40) openings formed therein to receive the respective heads of the buttons and a second set of one hundred sixty openings formed therein to receive the respective tips of eight (8) Braille pins of twenty (20) Braille cells when said tips are extended by actuation of their associated bimorph reeds.